Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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| In the Matter of | ) | |
| | ) | |
| Amendment of Part 74 of | ) | |
| the Commission's Rules | ) | MM Docket No. 93-106 |
| Governing Use of the | ) | |
| Frequencies in the | ) | |
| Instructional Television | ) | |
| Fixed Service | ) | |

# JOINT COMMENTS OF CROSS COUNTRY AND THE BOX SPRINGS EDUCATORS

CROSS COUNTRY
WIRELESS CABLE I, L.P.

CALIFORNIA STATE POLYTECHNIC
UNIVERSITY AT POMONA

REGENTS OF THE UNIVERSITY OF
CALIFORNIA

DIOCESE OF SAN BERNARDINO
EDUCATION & WELFARE CORPORATION

SAN BERNARDINO COMMUNITY
COLLEGE DISTRICT

June 14, 1993

SUMMARY

Cross Country Wireless Cable I, L.P. ("Cross Country") and the licensees of the ITFS A, B, D and G Channels located in Riverside, California -- California State Polytechnic University at Pomona, San Bernardino Community College District, the Diocese of San Bernardino Education and Welfare Corporation, and the Regents of the University of California (collectively, the "Box Springs Educators") -- file these joint comments in support of the channel-loading proposal set forth in the Commission's Notice of Proposed Rulemaking, MM Docket No. 93-106, FCC 93-183, at ¶ 16 (adopted April 6, 1993; released April 26, 1993). Cross Country and the Box Springs Educators believe the additional scheduling flexibility channel loading can provide will benefit both wireless cable subscribers and the educational goals of ITFS operators during the estimated 3-5 year interim period until digital compression technology is practicably available.

The experience of Cross Country and the Educators in developing and operating their wireless cable and ITFS systems in Riverside has shown that channel mapping, while indispensable under current rules, is a second-best solution that can be costly and, in some instances, burdensome. The Notice's channel-loading proposal would provide a means of avoiding the expense and burden of channel mapping and is an appropriate, logical next step in the Commission's ongoing effort to foster the educational purposes of ITFS, promote the growth of wireless cable, and ensure the efficient use of the

spectrum. Indeed, Cross Country and the Box Springs Educators urge the Commission to allow an ITFS licensee to consolidate its programming on any of the ITFS, MDS or MMDS channels of a wireless cable system provided it airs at least 80 hours of educational programming per week and has access to at least another 80 hours for educational programming per week under ready recapture provisions. With the scheduling flexibility provided by channel loading, ITFS licensees could divert their educational programming to fewer than four of their ITFS channels. Of course, channel loading would be permissive, not mandatory; an ITFS licensee would be free to negotiate excess capacity lease agreements that provide for the simultaneous use of each of its station's channels and require ready recapture on each of its channels to allow for such use in the future.

By lessening the need to employ channel-mapping technology, wireless cable operators will be able to offer less expensive service and devote more resources to improving their facilities and program offerings, thus furthering their ability to offer a competitive alternative to franchised coaxial cable operators. The Commission's channel-loading proposal will also provide ITFS licensees greater scheduling flexibility and also can help them fund the full development of their distance-learning capacities if greater lease payments result from more successful wireless-cable

where expensive channel-mapping technology can prove to be an overwhelming burden to the funding of ITFS operations through excess capacity lease arrangements with a wireless cable operator.

Cross Country and the Box Springs Educators commend the Commission and its staff for their strong, ongoing efforts over the years in fostering the growth of ITFS and wireless cable. The Notice is one more salutary effort in this regard as ITFS licensees and their wireless cable partners enter the digital era.

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**JOINT COMMENTS OF CROSS COUNTRY AND THE BOX SPRINGS EDUCATORS**

Cross Country Wireless Cable I, L.P. ("Cross Country"), and the licensees of the ITFS A, B, D, and G Channels located on Box Springs Mountain in Riverside,

will benefit both wireless cable subscribers and the educational goals of ITFS operators.

A. Background

Cross Country and the Box Springs Educators have formed precisely the type of mutually beneficial partnership the Commission envisioned in allowing wireless cable operators to lease the excess capacity of ITFS channels. The Educators' partnership with Cross Country has allowed them to greatly

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channels on Box Springs Mountain, Cross Country has assembled one of the nation's preeminent wireless cable systems. Even though its 27-channel system has been operating only since March 1991, and without the full complement of wireless cable channels, Cross Country has been able to initiate wireless cable service to over 38,000 subscribers, providing a competitive alternative to franchised coaxial cable operators in an area comprising 500,000 homes.

Cross Country, with the input of the Educators, has also been a pioneer in developing digital compression technology for use on wireless cable channels. Digital compression promises to greatly multiply existing channel capacity and to improve the coverage of wireless cable signals. Cross Country was one of the two wireless cable [redacted]

formation of the R&D Center marks the final stage in the wireless cable industry's effort to introduce digital compression into the multichannel video marketplace, with its initial focus being the refinement of the technical specifications for wireless cable digital transmission and reception equipment. The R&D Center will also develop interactive video, data, and voice capabilities in the wireless cable band which will permit multimedia applications for both the consumer and educational markets.

B. The Commission's Channel-Loading Proposal

As required by Sections 74.931(a) and 74.931(e)(2) of the Commission's rules, ITFS licensees presently must transmit ITFS programming on each of their channels. The Commission has recognized that this per-channel requirement could jeopardize the viability of wireless cable service transmitted on ITFS channel excess capacity. In particular, as the Commission has acknowledged, "[m]ost programmers require[] that programming be supplied on the same channel at all times." Order on Reconsideration, 69 RR2d 1477 at ¶ 52 (1991). Both wireless cable subscribers and ITFS receive sites also expect to be able to tune their television sets to

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[2/](...continued)
equipment manufacturers committed to participate in the Center: Zenith, Philips Electronics, General Instruments, Scientific Atlanta, Qualcomm, CMIS, Ltd., NTN Communications, Comwave EMCEE, ITS, Andrew, Lance, California Amplifier, Pacific Monolithic, Cablewave, Microwave Filter and Conifer. Peter A. Frank, the President of Cross Country's general partner, Cross Country Telecommunications, Inc., has been named the R&D Center's first chairman.

one designated channel and find a particular program; a viewer simply would not tolerate having to retune his or her television to search for a program that had been preempted and shunted to another channel.

In an effort to avoid this problem, the Commission has authorized the use of channel-mapping technology in Section 74.931(e)(4) of its Rules. Order on Reconsideration, 69 RR2d 1477, ¶ 52. With this technology, the wireless cable "leasing is scheduled on different channels in a staggered pattern and specialized equipment is used so that one type of programming is switched automatically at a prescribed time" between individual ITFS channels. Id. The ITFS programming is thus distributed across each of the licensee's channels while the viewer's display channels remain the same. However, channel mapping is a young technology requiring frequent adjustment to allow stereo and mono transmission on the same channel and to allow smooth transition when scrambled channels are switched.

Unfortunately, channel mapping technology also has proven to be costly as pointed out in petitions filed in February 1992 by four ITFS permittees in Spokane, Washington, seeking a waiver of the Commission's per-channel ITFS usage requirement. In response to these petitions, the Commission initiated this rulemaking, recognizing the drawbacks of channel mapping and stating its belief "that a relaxation of the per channel minimum use requirements may be appropriate in

order to permit a more flexible leasing scheme that will benefit and nurture ITFS operations during the transition to an era of channel compression technology." Notice at ¶ 14. In particular, the Notice would allow an ITFS operator to divert its ITFS programming to fewer than four of its ITFS channels while leasing the remaining channel time to a wireless cable operator, provided the ITFS operator transmits a minimum of 80 hours of educational programming per week. As proposed in the Notice, this flexible channel scheduling would be authorized for a period of three to five years until digital compression becomes viable both technologically and economically, at which time the Commission can revisit its ITFS leasing rules. Id. at ¶¶ 15-16.

Cross Country and the Box Springs Educators support the channel loading proposal set forth in the Notice in paragraph 16, and agree that this flexible channel scheduling should be authorized for the estimated 3-5 year period until digital compression technology is viable. Indeed, to increase the scheduling flexibility of both ITFS licensees and wireless cable operators, the Commission should allow ITFS licensees to air their programs on any of the ITFS, MDS or MMDS channels of a particular system, so long as the ITFS licensee airs at least 80 hours of educational programs per week and has access to at least another 80 hours for educational programming per week under ready recapture provisions. There appears to be no reason to require each ITFS licensee to transmit only on its

own ITFS channels and not to allow consolidation of any of an ITFS operator's programs on the channels of another ITFS licensee participating in an excess capacity lease arrangement with the same wireless cable operator, or on the wireless cable operators' commercial channels such as Channels MDS-1 or 2, the E-Channels, the F-Channels, or the H-Channels.

While indispensable under current rules, channel mapping can be costly and, in some instances, burdensome. Cross Country has invested a substantial amount of resources in channel-mapping technology for the ITFS-wireless cable facilities it has constructed in Riverside. At a cost of $100,000, it has purchased a matrix switcher with switching capacity for all the ITFS channels licensed to the Box Springs Educators. This matrix switcher is connected to a computer in Cross Country's Riverside studio which is programmed to control the switching, timing, and addressability involved in channel mapping. With this computer and switcher, the various educational and wireless programming sources are relocated and replaced among the ITFS channels and their respective transmitters through a complex sequence of steps. This process requires a significant amount of staff resources to schedule the channel-mapping scheme and to program and maintain the necessary equipment. Certain transmissions is

coordinating this complex array of program scheduling and channel mapping is multiplied each time one of the Educators reschedules its educational programming.

The use of channel-mapping technology has thus added to the cost of initiating and maintaining wireless cable service in Riverside. This cost will grow as the Educators install their additional receive sites. With less channel-mapping, installation of receive site equipment at some sites can be much more straightforward; a downconverter connected to the microwave receive antenna could downconvert the signal to a cable TV frequency which could then be relayed directly to the cable-ready television located at each outlet at the receive site.[3/] With channel mapping, however, depending on the particular set-up at each receive site, numerous costly components and adjustments can be required, including the installation of $100 set-top converters or modulators at ITFS receive sites to ensure that the ITFS programming, which is switched from channel to channel by the channel-mapping scheme, is displayed on one designated channel at the receive site. This cost can be compounded at those receive sites with multiple television viewing locations, with <u>each</u> television set requiring a set-top converter. Moreover, in implementing channel-mapping at sites with multiple television sets, the

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[3/] The great majority of receive sites are now equipped with cable-ready televisions. Alternatively, a simple $15 converter can be installed to enable the non-cable-ready television to receive the downconverted signal.

entire system must be checked to ensure that each set is receiving a sufficiently strong signal. In addition to the considerable expense involved, the installation and maintenance of channel-mapping systems can be time consuming and disruptive of the receive site's educational activities.

As the experience of ITFS licensees and lessees such as the Educators and Cross Country demonstrates, channel mapping has proven to be a less than optimal method of providing the flexibility in ITFS leasing that is essential to the continued growth of ITFS and wireless cable service. The Notice's addition of channel-loading as a means to address the Educators' scheduling flexibility needs is an appropriate, logical next step in the Commission's ongoing effort to foster the educational purposes of ITFS, promote the growth of wireless cable, and ensure the efficient use of the spectrum. The Box Springs Educators and Cross Country believe each of these goals is furthered by the proposal advanced in the Notice. However, we believe that each ITFS applicant which plans to channel load educational programs on fewer than four ITFS channels should include in its application for a new station an exhibit explaining its justification for channel loading and describing the duration and extent of channel loading being proposed. Existing ITFS licensees who plan to channel load should notify the Commission of the duration and extent of their planned channel loading as well as an explanation of their need for this scheduling flexibility. In

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fully developing educational programming and maximizing the full use of the spectrum. Relaxation of the Commission's per-channel ITFS usage requirement will further stimulate these goals which could result in more, not less, ITFS programming. This is especially the case in smaller markets, where the high capital costs and burdens of complying with this requirement through channel mapping may create a potentially overwhelming deterrent to ITFS excess capacity lease arrangements to the point where ITFS spectrum simply may go unused.

With the adoption of the Notice's proposal, the benefits that accrue to ITFS licensees through partnerships with wireless cable operators should increase not only in additional educational programming, but also in the quality and nature of that programming. For example, with the lease payments they have earned from Cross Country, the Box Springs Educators have been able to begin offering more advanced placement social science, mathematics, science, agriculture and history classes to a larger group of high school students, as well as more teacher education classes to elementary and secondary teachers. Also, wide dissemination of innovative programs such as the English and Spanish broadcasts of programs on gang prevention and substance abuse prevention have been started for elementary and secondary students' parents. The Educators look forward to adding a wider variety of educational offerings and exploring more innovative

pedagogical uses of digital technology such as interactive educational programming.

The channel loading proposed in the Notice will not lessen the Commission's underlying commitment to the educational purpose of ITFS. Licensees will still be required to carry at least 20 hours per channel of weekly educational programming on their stations, with an additional 20 hours per channel subject to ready recapture by the licensee. Licensees will merely have greater flexibility in how they distribute that programming among their channels and the wireless operators' MDS and MMDS channels. In addition to this overall programming requirement, an ITFS applicant will also, of course, need to meet the eligibility requirements set forth in Section 74.932 of the Rules to ensure its proposed station serves educational purposes.

It also must be kept in mind, as paragraph 17 of the Notice stresses, that channel loading should be permissive, not mandatory. An ITFS licensee will be free to negotiate excess capacity lease agreements that provide for the simultaneous use of each of its station's channels and require ready recapture on each channel to allow for such use in the future. Cross Country and the Educators believe that ITFS operators are in the best position to determine their own scheduling needs as well as the most effective means for maximizing their distance learning capabilities in a partnership with a wireless cable operator. Moreover,

licensees who maximize their ITFS capabilities as contemplated by the Commission through such means as channel loading should in no way be penalized for doing so when they apply to renew their ITFS licenses or at any other time. The Commission should make clear that there will be no direct or indirect regulatory disincentive to such innovation which, after all, is designed to promote flexible scheduling of educational programming and the efficient use of the spectrum.

Cross Country and the Educators consequently urge the Commission to adopt, on a temporary basis until digital compression is implemented, the Notice's channel-loading proposal without imposing additional, unnecessary regulatory requirements regarding the scheduling of ITFS programming and ready-recapture time. This would provide much-needed flexibility at a time when wireless cable is still growing to its full potential and when digital compression is being fully explored and implemented. Cross Country, as a leader in technical innovation, anticipates the advent of an operational digital compression system as early as mid-1994, and agrees with the Commission that this new technology will be implemented on a wide-scale, practicable basis by 1998 at the very latest. Notice at ¶ 16. At that time, the Commission may deem it appropriate to "adapt our purpose and permissible rules in light of [digital compression] technology." Id.

## CONCLUSION

Cross Country and the Box Springs Educators commend the Commission for its dedicated efforts over the past several years in guiding the balanced growth of ITFS and wireless cable. The Notice represents another thoughtful effort in this regard and promises to provide welcome regulatory flexibility as these two partners enter the digital era.

Respectfully submitted,

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